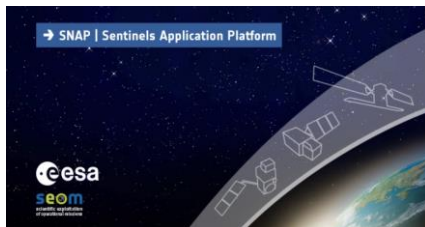




Exercise: SAR Preprocessing using SNAP 5.0.0

PD Dr. habil. Christian Thiel



Open Source Radar-Software/Tools



Nest - Next ESA SAR Toolbox (Beam, Best)
Sentinel-1 Toolbox, SNAP
POLARPRO - Polarimetric SAR Data Processing and Educational Tool



MapReady Remote Sensing Tool Kit
SAR Training Processor (STP)



TU Berlin

RAT (Radar Tools)
I.D.I.O.T. - INSAR Deformation Inspection and Observation Tool (Plugin for RAT)



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SNAP – SENTINELS APPLICATION PLATFORM



ESA STEP TOOLBOXES **DOWNLOAD** GALLERY DOCUMENTATION COMMUNITY THIRD PARTY PLUGINS

- SNAP
- Sentinel 1 Toolbox
- Sentinel 2 Toolbox
- Sentinel 3 Toolbox
- SMOS Toolbox
- Download
- Community
- Useful Links

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Here you can download the latest installers for SNAP and the Sentinel Toolboxes.

Data provision is available to all users via the [Sentinel Data Hub](#).

Current Version

The current version is 5.0.0 (05.12.2016 14:40).

For detailed information about changes made for this release please have a look at the [release notes](#) of the different projects: [SNAP](#), [S1TBX](#), [S2TBX](#), [S3TBX](#), [SMOS_Boj](#), [PROBA-V](#) Toolbox.

We offer three different installers for your convenience. Choose the one from the following table which suits your needs. During the installation process each toolbox can be excluded from the installation. Toolboxes which are not initially installed via the installer can be later downloaded and installed using the plugin manager. Please note that SNAP and the individual Sentinel Toolboxes also support numerous sensors other than Sentinel.

	Windows 64-bit	Windows 32-bit	Mac OS X	Unix 64-bit
Sentinel Toolboxes	These installers contain the Sentinel 1, Sentinel 2, Sentinel 3 Toolboxes			
	Download	Download	Download	Download
	These installers contain only the SMOS Toolbox.			
	Download also the Sentinel Sentinel3_Std (with Explorer for Sentinel3) and the gpl manual			
SMOS Toolbox	Download	Download	Download	Download
	These installers contain the Sentinel 1, Sentinel 2, Sentinel 3 Toolboxes, SMOS and PROBA-V Toolbox			
All Toolboxes	Download	Download	Download	Download

If you later decide to install an additional toolbox to your installation you can follow this [step-by-step guide](#).

We are happy to **get your feedback** on the software installation procedure, functionalities, encountered issues, etc on the [Forum](#). You may also watch the [Blog](#) to be informed about SNAP news such as new software releases or interesting events.

Release Notes

[SNAP](#), [S1TBX](#), [S2TBX](#), [S3TBX](#), [SMOS_Boj](#), [PROBA-V](#) Toolbox

Previous Versions

Former releases can be downloaded from the [Previous Versions](#) page.

ESA POLARIS 2017 Workshop

ESA POLARIS 2016

Colour and Light in the Ocean from Earth Observation

Earth Observation Open Science 2016 Conference

ESA EO summer school on "Earth System Monitoring & Modeling"

ESA Advanced Training Course on Remote Sensing of the Cryosphere

Archive

<http://step.esa.int/main/download/>



<https://scihub.copernicus.eu>
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Where to store data:

SRTM DEM Data Folder: C:\Users\c5thch\.snap\auxdata\dem\SRTM 3Sec

File: srtm_41_04.zip

(do not unpack zip)

Sentinel-1A SAR Data Folder: Somewhere on local drive

File:

S1A_IW_GRDH_1SDV_20160510T162422_20160510T162447_011199_010EB6_2143.zip

(do not unpack zip)



Plan for today:

1. Open “real” SAR data with SNAP
2. Interpret the data including meta information
3. Find location of SAR data set
4. SAR data processing
5. Statistical analyses
6. Create Bands and delete bands from stack
7. SAR-Simulation based Radiometric Terrain Flattening and RD-Orthorectification
8. Export processed data



Step by step (1/2)

1. Copy data
2. Start SNAP
3. Open S1A data – Display data in grey scale and as RGB-composite
4. Interpret the data (metadata, pixelinfo, image navigation tools etc.)
5. Find location of area covered by SAR data set
6. Multi-Looking (5x5)
7. Create Elevation Band (SRTM)
8. Do SAR Simulation (incl. Layover-Shadow Mask)



Step by step (2/2)

9. Range-Doppler Terrain Correction, Input: ML dataset
10. Convert gamma0 images from linear to dB
11. Compute difference image from gamma0 [dB]: HH – HV
12. Display data as RGB view – adapt data stretch
13. Statistical analyses: Scatterplots, Histogram Analysis, Profile Plot etc.
14. Export processed data